

Classified
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: NEO-RAY

Report Number: P79197

Luminaire Tested: **DFN2DIP-RG4F0-090D110US935-FLL-FLL-1DUDD-W**

Issue Date: 02/20/2024



Test Information

Test Method: LM-79-08
Report Number: P79197
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA
Test Lab: INNOVATION CENTER(G3)
Issue Date: 02/20/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: DFN2DIP-RG4F0-090D110US935-FLL-FLL-1DUDD-W
Description: Define Geo Ring 4ft Diameter Direct/Indirect Fixture w/ Frosted Lens
Light Source: 3500K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

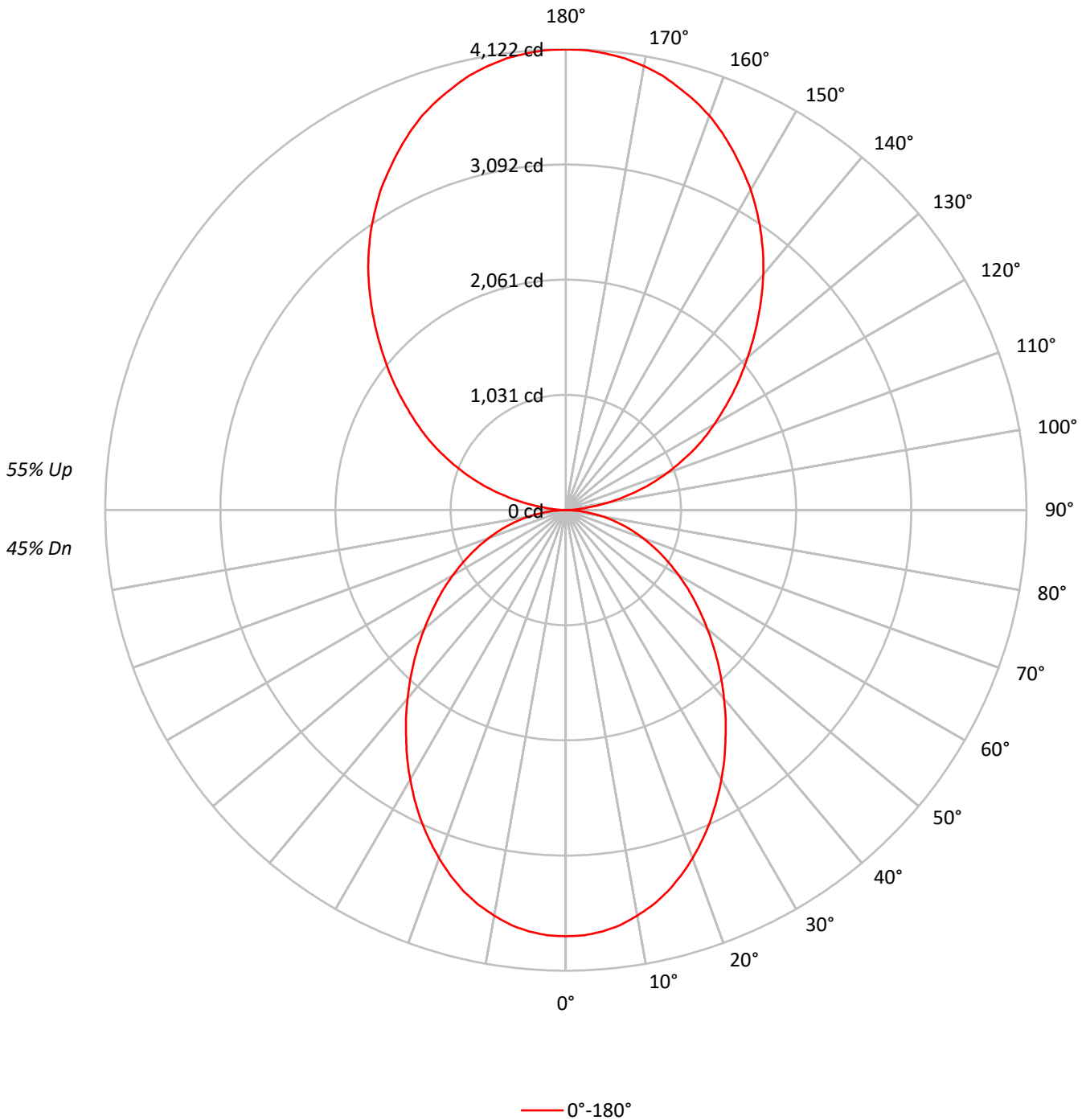
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 19378.4 lumens
Efficiency: N/A
Efficacy: 70.9 lumens/watt
Spacing Criteria (0/90/45): 1.11 / 1.11 / 1.21
Luminous Opening: Circular (Dia: 4' x H: 0')
CIE Type: General Diffuse

Input Watts (W): 273.5
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT

TEST NUMBER: P79197
CATALOG NUMBER: DFN2DIP-RG4F0-090D110US935-FLL-FLL-1DUDD-W

Luminous Intensity Polar Plot





TEST NUMBER: P79197

CATALOG NUMBER: DFN2DIP-RG4F0-090D110US935-FLL-FLL-1DUDD-W

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

| | | | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| RF | 20 | | | | 20 | | | | 20 | | | | 20 | | | | 20 | | | | 20 |
| RC | 80 | | | | 70 | | | | 50 | | | | 30 | | | | 10 | | | | 0 |
| RW | 70 | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 0 |
| RCR | | | | | | | | | | | | | | | | | | | | | |
| 0 | 106 | 106 | 106 | 106 | 97 | 97 | 97 | 97 | 81 | 81 | 81 | 65 | 65 | 65 | 52 | 52 | 52 | 45 | 45 | 45 | 45 |
| 1 | 97 | 92 | 89 | 85 | 89 | 85 | 82 | 79 | 71 | 68 | 66 | 58 | 56 | 55 | 46 | 45 | 44 | 38 | 38 | 38 | 38 |
| 2 | 88 | 81 | 75 | 70 | 81 | 74 | 69 | 65 | 62 | 58 | 55 | 51 | 48 | 46 | 40 | 39 | 37 | 32 | 32 | 32 | 32 |
| 3 | 81 | 71 | 64 | 58 | 74 | 66 | 59 | 54 | 55 | 50 | 46 | 45 | 42 | 39 | 36 | 34 | 32 | 27 | 27 | 27 | 27 |
| 4 | 74 | 63 | 55 | 49 | 67 | 58 | 51 | 46 | 49 | 44 | 40 | 40 | 36 | 33 | 32 | 30 | 27 | 24 | 24 | 24 | 24 |
| 5 | 68 | 56 | 48 | 42 | 62 | 52 | 45 | 40 | 44 | 38 | 34 | 36 | 32 | 29 | 29 | 26 | 24 | 21 | 21 | 21 | 21 |
| 6 | 62 | 51 | 43 | 37 | 57 | 47 | 40 | 35 | 40 | 34 | 30 | 33 | 29 | 26 | 26 | 24 | 21 | 18 | 18 | 18 | 18 |
| 7 | 58 | 46 | 38 | 32 | 53 | 42 | 35 | 30 | 36 | 30 | 27 | 30 | 26 | 23 | 24 | 21 | 19 | 16 | 16 | 16 | 16 |
| 8 | 54 | 41 | 34 | 29 | 49 | 38 | 32 | 27 | 33 | 27 | 24 | 27 | 23 | 20 | 22 | 19 | 17 | 15 | 15 | 15 | 15 |
| 9 | 50 | 38 | 31 | 26 | 46 | 35 | 29 | 24 | 30 | 25 | 21 | 25 | 21 | 18 | 21 | 18 | 15 | 13 | 13 | 13 | 13 |
| 10 | 47 | 35 | 28 | 23 | 43 | 32 | 26 | 22 | 28 | 23 | 19 | 23 | 19 | 17 | 19 | 16 | 14 | 12 | 12 | 12 | 12 |

AVERAGE LUMINANCE (cd/sqm):

| | |
|-----|------|
| | 0° |
| 0° | 3267 |
| 5° | 3254 |
| 10° | 3205 |
| 15° | 3131 |
| 20° | 3023 |
| 25° | 2896 |
| 30° | 2754 |
| 35° | 2606 |
| 40° | 2463 |
| 45° | 2328 |
| 50° | 2202 |
| 55° | 2092 |
| 60° | 1997 |
| 65° | 1913 |
| 70° | 1837 |
| 75° | 1760 |
| 80° | 1652 |
| 85° | 1357 |



TEST NUMBER: P79197
 CATALOG NUMBER: DFN2DIP-RG4F0-090D110US935-FLL-FLL-1DUDD-W

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 358.2 | 1.8 |
| 10°-20° | 992.3 | 5.1 |
| 20°-30° | 1408.6 | 7.3 |
| 30°-40° | 1559.6 | 8.0 |
| 40°-50° | 1484.4 | 7.7 |
| 50°-60° | 1256.1 | 6.5 |
| 60°-70° | 936.2 | 4.8 |
| 70°-80° | 563.0 | 2.9 |
| 80°-90° | 163.3 | 0.8 |
| 90°-100° | 172.5 | 0.9 |
| 100°-110° | 707.3 | 3.7 |
| 110°-120° | 1238.1 | 6.4 |
| 120°-130° | 1633.0 | 8.4 |
| 130°-140° | 1879.4 | 9.7 |
| 140°-150° | 1901.1 | 9.8 |
| 150°-160° | 1632.4 | 8.4 |
| 160°-170° | 1103.5 | 5.7 |
| 170°-180° | 389.4 | 2.0 |
| 0°-30° | 2759.0 | 14.2 |
| 0°-40° | 4318.6 | 22.3 |
| 0°-60° | 7059.1 | 36.4 |
| 0°-90° | 8721.5 | 45.0 |
| 90°-120° | 2118.0 | 10.9 |
| 90°-150° | 7531.5 | 38.9 |
| 90°-180° | 10657.0 | 55.0 |
| 0°-180° | 19378.4 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | Flux |
|------|------|------|
| 0° | 3814 | |
| 5° | 3784 | 358 |
| 15° | 3531 | 992 |
| 25° | 3065 | 1409 |
| 35° | 2492 | 1560 |
| 45° | 1922 | 1484 |
| 55° | 1401 | 1256 |
| 65° | 944 | 936 |
| 75° | 532 | 563 |
| 85° | 138 | 155 |
| 90° | 5 | 17 |
| 95° | 138 | 164 |
| 105° | 670 | 707 |
| 115° | 1253 | 1238 |
| 125° | 1825 | 1633 |
| 135° | 2435 | 1879 |
| 145° | 3042 | 1901 |
| 155° | 3544 | 1632 |
| 165° | 3913 | 1104 |
| 175° | 4100 | 389 |
| 180° | 4122 | |



TEST NUMBER: P79197

CATALOG NUMBER: DFN2DIP-RG4F0-090D110US935-FLL-FLL-1DUDD-W

CANDELA DISTRIBUTION (FULL):

| 0° | |
|--------|--------|
| 0° | 3813.9 |
| 2.5° | 3809.4 |
| 5° | 3784.5 |
| 7.5° | 3746.0 |
| 10° | 3684.9 |
| 12.5° | 3617.0 |
| 15° | 3531.0 |
| 17.5° | 3429.1 |
| 20° | 3315.9 |
| 22.5° | 3193.7 |
| 25° | 3064.7 |
| 27.5° | 2926.6 |
| 30° | 2784.0 |
| 32.5° | 2641.4 |
| 35° | 2492.0 |
| 37.5° | 2349.4 |
| 40° | 2202.3 |
| 42.5° | 2062.0 |
| 45° | 1921.7 |
| 47.5° | 1785.8 |
| 50° | 1652.3 |
| 52.5° | 1525.6 |
| 55° | 1401.1 |
| 57.5° | 1283.4 |
| 60° | 1165.7 |
| 62.5° | 1052.5 |
| 65° | 943.9 |
| 67.5° | 837.5 |
| 70° | 733.4 |
| 72.5° | 633.8 |
| 75° | 531.9 |
| 77.5° | 434.6 |
| 80° | 335.0 |
| 82.5° | 237.7 |
| 85° | 138.1 |
| 87.5° | 54.3 |
| 90° | 5.4 |
| 92.5° | 56.9 |
| 95° | 138.3 |
| 97.5° | 246.7 |
| 100° | 379.6 |
| 102.5° | 523.3 |
| 105° | 669.7 |
| 107.5° | 818.9 |
| 110° | 962.6 |



TEST NUMBER: P79197
CATALOG NUMBER: DFN2DIP-RG4F0-090D110US935-FLL-FLL-1DUDD-W

CANDELA DISTRIBUTION (continued):

| | 0° |
|--------|--------|
| 112.5° | 1106.3 |
| 115° | 1252.7 |
| 117.5° | 1396.4 |
| 120° | 1534.7 |
| 122.5° | 1675.7 |
| 125° | 1824.9 |
| 127.5° | 1974.0 |
| 130° | 2123.1 |
| 132.5° | 2277.7 |
| 135° | 2434.9 |
| 137.5° | 2592.2 |
| 140° | 2749.5 |
| 142.5° | 2898.6 |
| 145° | 3042.3 |
| 147.5° | 3177.9 |
| 150° | 3310.8 |
| 152.5° | 3427.4 |
| 155° | 3544.0 |
| 157.5° | 3655.1 |
| 160° | 3755.5 |
| 162.5° | 3839.5 |
| 165° | 3912.7 |
| 167.5° | 3983.2 |
| 170° | 4032.0 |
| 172.5° | 4075.4 |
| 175° | 4099.8 |
| 177.5° | 4118.8 |
| 180° | 4121.5 |

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

NEO-RAY

Report Number: SP1-2401-290-3

Test Date: 01/18/2024

Luminaire Tested: RNG2DIP-RG2F0-020D020US935-FLL-FLL-1-D-UDD-W

Data in this report applies to families of products including RNG2DIP-RG2F0-020D020US935-FLL-FLL-1-D-UDD-W.

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2401-290-3
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 01/19/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: NEO-RAY
 Catalog Number: **RNG2DIP-RG2F0-020D020US935-FLL-FLL-1-D-UDD-W**
 Description: 2' RING DIRECT/INDIRECT FIXTURE WITH FROSTED LIGHT LEVEL 1

Spectral Parameters

CCT (K): 3266
 CIE u': 0.2418
 CIE v': 0.5165
 Duv: 0.0004
 CIE x: 0.4195
 CIE y: 0.3983
 CIE z: 0.1822
 Peak Wavelength (nm): 622
 Dominant Wavelength (nm): 581
 Purity: 45.7

| | | | |
|-----------|------|------|------|
| CRI (Ra): | 94.3 | | |
| R1: | 95.8 | R9: | 70.9 |
| R2: | 99.6 | R10: | 97.8 |
| R3: | 97.8 | R11: | 93.7 |
| R4: | 92.3 | R12: | 78.5 |
| R5: | 94.5 | R13: | 97.3 |
| R6: | 96.9 | R14: | 99.5 |
| R7: | 91.7 | | |
| R8: | 85.8 | | |

Rf: 89.7
 Rg: 96

Test Conditions

Stabilization Time: 23M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.6/15%
 Sphere Temperature (°C): 25.0



REPORT NUMBER: SP1-2401-290-3

| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | 76INCH SPHERE IN0058 | 8/9/2023 | 2/9/2024 |
| Power Meter | XITRON 2801 IN0071 | 10/23/2023 | 10/23/2024 |
| AC Power Source | CHROMA 61603 IN0063 | 10/24/2023 | 10/24/2024 |
| DC Power Source | AGILENT E3634A IN0208 | 10/24/2023 | 10/24/2024 |
| Sphere Thermometer | ONSET IN0085 | 10/24/2023 | 10/24/2024 |
| Room Thermometer | ONSET IN0046 | 10/24/2023 | 10/24/2024 |

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CIE 1931 Chromaticity Diagram



CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3500K 7-step quadrangle

REPORT NUMBER: SP1-2401-290-3

Photopic Flux vs. Wavelength



#####

| λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360 | 1629 | NR | 490 | 29053 | NR | 620 | 74209 | NR | 750 | 6888 | NR | 880 | 1748 | NR |
| 365 | 1454 | NR | 495 | 31666 | NR | 625 | 74272 | NR | 755 | 6228 | NR | 885 | 2090 | NR |
| 370 | 1629 | NR | 500 | 34017 | NR | 630 | 73480 | NR | 760 | 5422 | NR | 890 | 1758 | NR |
| 375 | 1858 | NR | 505 | 36249 | NR | 635 | 71830 | NR | 765 | 4797 | NR | 895 | 1314 | NR |
| 380 | 1749 | NR | 510 | 38217 | NR | 640 | 69587 | NR | 770 | 4188 | NR | 900 | 1396 | NR |
| 385 | 1536 | NR | 515 | 39860 | NR | 645 | 66732 | NR | 775 | 3908 | NR | 905 | 1719 | NR |
| 390 | 1529 | NR | 520 | 41609 | NR | 650 | 63415 | NR | 780 | 3310 | NR | 910 | 1294 | NR |
| 395 | 1463 | NR | 525 | 42891 | NR | 655 | 59840 | NR | 785 | 2985 | NR | 915 | 1111 | NR |
| 400 | 1224 | NR | 530 | 44613 | NR | 660 | 56027 | NR | 790 | 2855 | NR | 920 | 1575 | NR |
| 405 | 1043 | NR | 535 | 46325 | NR | 665 | 51741 | NR | 795 | 2630 | NR | 925 | 1667 | NR |
| 410 | 987 | NR | 540 | 47843 | NR | 670 | 47426 | NR | 800 | 2493 | NR | 930 | 1367 | NR |
| 415 | 1121 | NR | 545 | 49858 | NR | 675 | 42932 | NR | 805 | 2287 | NR | 935 | 1770 | NR |
| 420 | 1486 | NR | 550 | 51603 | NR | 680 | 38693 | NR | 810 | 2365 | NR | 940 | 1320 | NR |
| 425 | 2215 | NR | 555 | 53318 | NR | 685 | 34666 | NR | 815 | 2293 | NR | 945 | 1116 | NR |
| 430 | 3506 | NR | 560 | 54494 | NR | 690 | 30616 | NR | 820 | 2133 | NR | 950 | 1061 | NR |
| 435 | 5766 | NR | 565 | 56036 | NR | 695 | 26969 | NR | 825 | 2062 | NR | 955 | 1031 | NR |
| 440 | 9588 | NR | 570 | 57542 | NR | 700 | 24034 | NR | 830 | 1984 | NR | 960 | 1226 | NR |
| 445 | 16724 | NR | 575 | 59048 | NR | 705 | 21175 | NR | 835 | 1661 | NR | 965 | 1706 | NR |
| 450 | 30943 | NR | 580 | 60878 | NR | 710 | 18518 | NR | 840 | 1876 | NR | 970 | 2450 | NR |
| 455 | 47636 | NR | 585 | 62497 | NR | 715 | 16588 | NR | 845 | 1600 | NR | 975 | 1734 | NR |
| 460 | 49838 | NR | 590 | 64427 | NR | 720 | 14496 | NR | 850 | 1696 | NR | 980 | 2566 | NR |
| 465 | 39446 | NR | 595 | 66624 | NR | 725 | 12823 | NR | 855 | 1520 | NR | 985 | 1729 | NR |
| 470 | 34419 | NR | 600 | 68452 | NR | 730 | 11311 | NR | 860 | 1911 | NR | 990 | 1841 | NR |
| 475 | 31320 | NR | 605 | 70794 | NR | 735 | 9697 | NR | 865 | 1622 | NR | 995 | 1376 | NR |
| 480 | 27788 | NR | 610 | 72666 | NR | 740 | 8643 | NR | 870 | 1892 | NR | 1000 | 1354 | NR |
| 485 | 27149 | NR | 615 | 73950 | NR | 745 | 7625 | NR | 875 | 1742 | NR | | | |

REPORT NUMBER: SP1-2401-290-3

Scotopic Flux vs. Wavelength



Scotopic Lumens: 6226

S/P: 1.58

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 1629 | NR | 490 | 29053 | NR | 620 | 74209 | NR | 750 | 6888 | NR | 880 | 1748 | NR |
| 365 | 1454 | NR | 495 | 31666 | NR | 625 | 74272 | NR | 755 | 6228 | NR | 885 | 2090 | NR |
| 370 | 1629 | NR | 500 | 34017 | NR | 630 | 73480 | NR | 760 | 5422 | NR | 890 | 1758 | NR |
| 375 | 1858 | NR | 505 | 36249 | NR | 635 | 71830 | NR | 765 | 4797 | NR | 895 | 1314 | NR |
| 380 | 1749 | NR | 510 | 38217 | NR | 640 | 69587 | NR | 770 | 4188 | NR | 900 | 1396 | NR |
| 385 | 1536 | NR | 515 | 39860 | NR | 645 | 66732 | NR | 775 | 3908 | NR | 905 | 1719 | NR |
| 390 | 1529 | NR | 520 | 41609 | NR | 650 | 63415 | NR | 780 | 3310 | NR | 910 | 1294 | NR |
| 395 | 1463 | NR | 525 | 42891 | NR | 655 | 59840 | NR | 785 | 2985 | NR | 915 | 1111 | NR |
| 400 | 1224 | NR | 530 | 44613 | NR | 660 | 56027 | NR | 790 | 2855 | NR | 920 | 1575 | NR |
| 405 | 1043 | NR | 535 | 46325 | NR | 665 | 51741 | NR | 795 | 2630 | NR | 925 | 1667 | NR |
| 410 | 987 | NR | 540 | 47843 | NR | 670 | 47426 | NR | 800 | 2493 | NR | 930 | 1367 | NR |
| 415 | 1121 | NR | 545 | 49858 | NR | 675 | 42932 | NR | 805 | 2287 | NR | 935 | 1770 | NR |
| 420 | 1486 | NR | 550 | 51603 | NR | 680 | 38693 | NR | 810 | 2365 | NR | 940 | 1320 | NR |
| 425 | 2215 | NR | 555 | 53318 | NR | 685 | 34666 | NR | 815 | 2293 | NR | 945 | 1116 | NR |
| 430 | 3506 | NR | 560 | 54494 | NR | 690 | 30616 | NR | 820 | 2133 | NR | 950 | 1061 | NR |
| 435 | 5766 | NR | 565 | 56036 | NR | 695 | 26969 | NR | 825 | 2062 | NR | 955 | 1031 | NR |
| 440 | 9588 | NR | 570 | 57542 | NR | 700 | 24034 | NR | 830 | 1984 | NR | 960 | 1226 | NR |
| 445 | 16724 | NR | 575 | 59048 | NR | 705 | 21175 | NR | 835 | 1661 | NR | 965 | 1706 | NR |
| 450 | 30943 | NR | 580 | 60878 | NR | 710 | 18518 | NR | 840 | 1876 | NR | 970 | 2450 | NR |
| 455 | 47636 | NR | 585 | 62497 | NR | 715 | 16588 | NR | 845 | 1600 | NR | 975 | 1734 | NR |
| 460 | 49838 | NR | 590 | 64427 | NR | 720 | 14496 | NR | 850 | 1696 | NR | 980 | 2566 | NR |
| 465 | 39446 | NR | 595 | 66624 | NR | 725 | 12823 | NR | 855 | 1520 | NR | 985 | 1729 | NR |
| 470 | 34419 | NR | 600 | 68452 | NR | 730 | 11311 | NR | 860 | 1911 | NR | 990 | 1841 | NR |
| 475 | 31320 | NR | 605 | 70794 | NR | 735 | 9697 | NR | 865 | 1622 | NR | 995 | 1376 | NR |
| 480 | 27788 | NR | 610 | 72666 | NR | 740 | 8643 | NR | 870 | 1892 | NR | 1000 | 1354 | NR |
| 485 | 27149 | NR | 615 | 73950 | NR | 745 | 7625 | NR | 875 | 1742 | NR | | | |

REPORT NUMBER: SP1-2401-290-3

Melanopic Flux vs. Wavelength



Melanopic Lumens: 2506.4 M/P: 0.64

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 1629 | NR | 490 | 29053 | NR | 620 | 74209 | NR | 750 | 6888 | NR | 880 | 1748 | NR |
| 365 | 1454 | NR | 495 | 31666 | NR | 625 | 74272 | NR | 755 | 6228 | NR | 885 | 2090 | NR |
| 370 | 1629 | NR | 500 | 34017 | NR | 630 | 73480 | NR | 760 | 5422 | NR | 890 | 1758 | NR |
| 375 | 1858 | NR | 505 | 36249 | NR | 635 | 71830 | NR | 765 | 4797 | NR | 895 | 1314 | NR |
| 380 | 1749 | NR | 510 | 38217 | NR | 640 | 69587 | NR | 770 | 4188 | NR | 900 | 1396 | NR |
| 385 | 1536 | NR | 515 | 39860 | NR | 645 | 66732 | NR | 775 | 3908 | NR | 905 | 1719 | NR |
| 390 | 1529 | NR | 520 | 41609 | NR | 650 | 63415 | NR | 780 | 3310 | NR | 910 | 1294 | NR |
| 395 | 1463 | NR | 525 | 42891 | NR | 655 | 59840 | NR | 785 | 2985 | NR | 915 | 1111 | NR |
| 400 | 1224 | NR | 530 | 44613 | NR | 660 | 56027 | NR | 790 | 2855 | NR | 920 | 1575 | NR |
| 405 | 1043 | NR | 535 | 46325 | NR | 665 | 51741 | NR | 795 | 2630 | NR | 925 | 1667 | NR |
| 410 | 987 | NR | 540 | 47843 | NR | 670 | 47426 | NR | 800 | 2493 | NR | 930 | 1367 | NR |
| 415 | 1121 | NR | 545 | 49858 | NR | 675 | 42932 | NR | 805 | 2287 | NR | 935 | 1770 | NR |
| 420 | 1486 | NR | 550 | 51603 | NR | 680 | 38693 | NR | 810 | 2365 | NR | 940 | 1320 | NR |
| 425 | 2215 | NR | 555 | 53318 | NR | 685 | 34666 | NR | 815 | 2293 | NR | 945 | 1116 | NR |
| 430 | 3506 | NR | 560 | 54494 | NR | 690 | 30616 | NR | 820 | 2133 | NR | 950 | 1061 | NR |
| 435 | 5766 | NR | 565 | 56036 | NR | 695 | 26969 | NR | 825 | 2062 | NR | 955 | 1031 | NR |
| 440 | 9588 | NR | 570 | 57542 | NR | 700 | 24034 | NR | 830 | 1984 | NR | 960 | 1226 | NR |
| 445 | 16724 | NR | 575 | 59048 | NR | 705 | 21175 | NR | 835 | 1661 | NR | 965 | 1706 | NR |
| 450 | 30943 | NR | 580 | 60878 | NR | 710 | 18518 | NR | 840 | 1876 | NR | 970 | 2450 | NR |
| 455 | 47636 | NR | 585 | 62497 | NR | 715 | 16588 | NR | 845 | 1600 | NR | 975 | 1734 | NR |
| 460 | 49838 | NR | 590 | 64427 | NR | 720 | 14496 | NR | 850 | 1696 | NR | 980 | 2566 | NR |
| 465 | 39446 | NR | 595 | 66624 | NR | 725 | 12823 | NR | 855 | 1520 | NR | 985 | 1729 | NR |
| 470 | 34419 | NR | 600 | 68452 | NR | 730 | 11311 | NR | 860 | 1911 | NR | 990 | 1841 | NR |
| 475 | 31320 | NR | 605 | 70794 | NR | 735 | 9697 | NR | 865 | 1622 | NR | 995 | 1376 | NR |
| 480 | 27788 | NR | 610 | 72666 | NR | 740 | 8643 | NR | 870 | 1892 | NR | 1000 | 1354 | NR |
| 485 | 27149 | NR | 615 | 73950 | NR | 745 | 7625 | NR | 875 | 1742 | NR | | | |

REPORT NUMBER: SP1-2401-290-3

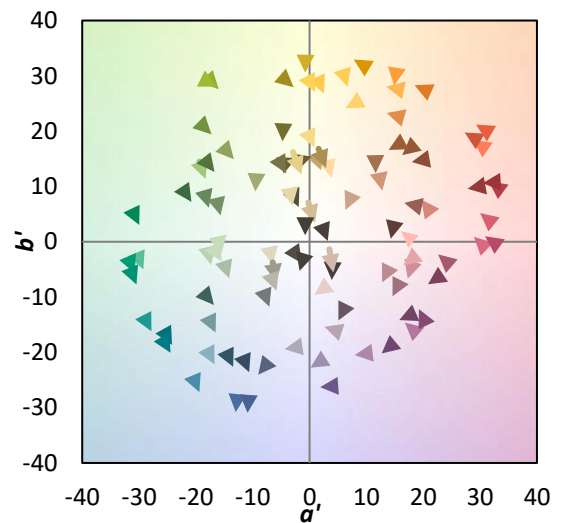
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Summary

$R_f = 89.7$
 $R_g = 96$
 $CIE R_a = 94.3$
 $R_9 = 70.9$



Color Vector Graphics



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Individual Sample Fidelity Index ($R_{f,i}$)

| | | | |
|------------|-------------|------------|------------|
| CES01 = 86 | CES26 = 96 | CES51 = 90 | CES76 = 95 |
| CES02 = 63 | CES27 = 86 | CES52 = 94 | CES77 = 89 |
| CES03 = 32 | CES28 = 100 | CES53 = 90 | CES78 = 92 |
| CES04 = 70 | CES29 = 86 | CES54 = 86 | CES79 = 92 |
| CES05 = 50 | CES30 = 75 | CES55 = 83 | CES80 = 92 |
| CES06 = 51 | CES31 = 88 | CES56 = 86 | CES81 = 81 |
| CES07 = 43 | CES32 = 94 | CES57 = 83 | CES82 = 97 |
| CES08 = 42 | CES33 = 84 | CES58 = 83 | CES83 = 93 |
| CES09 = 29 | CES34 = 98 | CES59 = 95 | CES84 = 95 |
| CES10 = 75 | CES35 = 99 | CES60 = 89 | CES85 = 81 |
| CES11 = 58 | CES36 = 74 | CES61 = 90 | CES86 = 85 |
| CES12 = 64 | CES37 = 97 | CES62 = 76 | CES87 = 93 |
| CES13 = 44 | CES38 = 71 | CES63 = 88 | CES88 = 92 |
| CES14 = 74 | CES39 = 96 | CES64 = 84 | CES89 = 88 |
| CES15 = 72 | CES40 = 95 | CES65 = 87 | CES90 = 88 |
| CES16 = 48 | CES41 = 88 | CES66 = 83 | CES91 = 71 |
| CES17 = 50 | CES42 = 97 | CES67 = 83 | CES92 = 80 |
| CES18 = 56 | CES43 = 93 | CES68 = 88 | CES93 = 87 |
| CES19 = 71 | CES44 = 99 | CES69 = 89 | CES94 = 83 |
| CES20 = 67 | CES45 = 94 | CES70 = 89 | CES95 = 85 |
| CES21 = 86 | CES46 = 92 | CES71 = 81 | CES96 = 94 |
| CES22 = 78 | CES47 = 85 | CES72 = 94 | CES97 = 94 |
| CES23 = 91 | CES48 = 78 | CES73 = 87 | CES98 = 91 |
| CES24 = 90 | CES49 = 93 | CES74 = 88 | CES99 = 90 |
| CES25 = 71 | CES50 = 91 | CES75 = 85 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)